



UNITED STATES PATENT AND TRADEMARK OFFICE

*cen*  
UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/605,671	10/16/2003	Monica M. Marugan	GEPL.P-077	2670

43247 7590 01/18/2008  
Marina Larson & Associates LLC  
re: lexan  
PO BOX 4928  
DILLON, CO 80435

EXAMINER	
ZIMMER, MARC S	

ART UNIT	PAPER NUMBER
1796	

MAIL DATE	DELIVERY MODE
01/18/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>		<b>Applicant(s)</b>	
	10/605,671		MARUGAN ET AL.	
	<b>Examiner</b>		<b>Art Unit</b>	
	Marc S. Zimmer		1796	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 November 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 72-132 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 72-80, 83-88, 91-107, 110-124, 127-132 is/are rejected.
- 7) ☒ Claim(s) 81, 82, 89, 90, 108, 109, 125 and 126 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 72-78, 80, 83-88, 91-97, 100, 102-107, and 110-112, 114-116, 118-124, and 127-130, and 132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamura et al., (U.S. 5,451,632).

Claims 79, 101, and 131 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamura et al., (U.S. 5,451,632) as applied to claims 72-78, 80, 83-88, 91-93, 100-107, and 110-112, 114-116, 118-124, and 127-129, and 132 above, and further in view of Lo et al., (5,804,654) and/or Falcone et al., (U.S. Patent Application Publication No. 2002/0019466).

Claims 94-96, 98-99, 113-115, and 117-118 are rejected under 35 U.S.C. 103(a) as being unpatentable over Okamura et al., (U.S. 5,451,632) as applied to claims 72-78, 80, 83-88, 91-93, 100-107, and 110-112, 114-116, 118-124, and 127-129, and 132 above in view of Brand, (U.S. 4,357,170) and/or Nelson et al., (U.S. 3,542,575).

***Response to Arguments***

Applicant has commented on the unduly length of this prosecution and the evolving opinions expressed by the Examiner as the prosecution has unfolded. For the record, the Examiner acknowledges that mistakes have been made. In particular, the

Examiner has, in two separate instances, incorrectly concluded that certain claims that have been presented were patentable when, in fact, they weren't. The Examiner sincerely regrets these premature indications of allowable subject matter and any inconvenience to the Applicant. Ultimately, the Examiner's goal is the same as Applicant's goal, i.e. to award a valid patent but it is, nevertheless, appreciated that Applicant wishes to have all the rejections laid before them as early in the prosecution as possible.

The Examiner has reviewed the entire prosecution history and believes that the unpatentable status of the claims hinges on the following points:

(I) While the Examiner agrees that the reference does not explicitly disclose a three-part composition comprising the claimed materials, he does not agree that an equivalent three-part composition is not fairly suggested or wouldn't be obvious to the skilled artisan. The Examiner also does not agree that the skilled artisan would not have arrived at a composition having similar quantities of the siloxane component and the titanium dioxide by following the teachings of the reference. Finally, the Examiner believes that the reference absolutely contemplates treating the titanium dioxide with an organic dispersant and, further, that trimethylolpropane would have been an obvious embodiment of the treating agent in view of the teachings of the supporting prior art.

(II) Applicant contends that the Examiner has agreed that results of the claimed invention are unexpected and, therefore, the rejection should be withdrawn as this is

one of several bases on which a 103 rejection should be withdrawn. The Examiner has not indicated that he is in agreement that unexpected results have been shown. Rather, he has said only that the problem of worsening flame retardance when a polycarbonate homopolymer, polycarbonate-polysiloxane copolymer and titanium dioxide are combined when compared to that of any of the three binary compositions realized from these three ingredients is unexpected. The Examiner has pondered whether or not the solution to an unexpected problem **necessarily** means that the solution is, likewise, unexpected, and has made the determination that it depends on the issues under consideration.

For instance, consider the hypothetical scenario wherein a novel polymer is prepared with an eye to using it in application that require the polymer to possess good impact resistance. However, despite the expectations that this polymer would possess good impact resistance based on the structure of the compound, mechanical tests indicate that the polymer is, instead, somewhat brittle. This is an unexpected *problem*. Consider then that the inventor proposes to resolve this matter by adding one of many known core-shell polymers having a well-documented effect of improving impact resistance. This is a solution that, although being applied to a unexpected problem is not, itself, unexpected.

The Examiner admits, on the other hand, that the solution presently offered to the unexpected problem of reduced flame retardance when all of a polycarbonate homopolymer, polycarbonate-polysiloxane copolymer and titanium dioxide are combined, i.e. (a) the incorporation of polycarbonate-polysiloxane in amounts that

provide a specified minimum quantity of siloxane content, and (b) the addition of titanium dioxide only in certain amounts and wherein the surface of this additive has been coated with an organic treating agent is not such a clearly-obvious solution and, thus, merits close consideration as a possible justification for withdrawal of the rejection.

The problem is, to demonstrate that the solution conceived by Applicants is unexpected, they must show that the parameters on which they rely are unequivocally critical to an expectation of success when practicing their invention. If the Applicants are to rely on the particular limitations of the claims and their criticality to successfully practice the invention as a means of overcoming the prior art, such an illustration would have to include (i), (ii), and (iii) as these are the parameters that Applicant has identified as being especially important on page 4 of their November 29, 2007 response:

(i) a clear demonstration that a desired level of flame retardance, ostensibly characterized by a p(FTP) at 1.6 mm of greater than 0.9, is only realized if the titanium dioxide is treated with an organic coating *even when all other aspects of the claimed invention are satisfied*. (That is to say, Applicants have indicated that coating the titanium dioxide is a critical element and, therefore, a measurement of the flame retardance in a composition containing a polycarbonate homopolymer, a polycarbonate-polysiloxane copolymer added in a quantity corresponding to that needed to provide at least 3 wt.% siloxane, and 1-2.5 wt.% of untreated titanium dioxide should yield a p(FTP) at 1.6 mm of considerably lower than 0.9.)



(ii) a clear demonstration that, when the amount of titanium dioxide is less than 1 wt.%, or higher than 2.5 wt.%, the flame retardance as measured by the p(FTP) at 1.6 mm test is dramatically lowered.

(iii) a clear demonstration that, when the amount of siloxane contributed by the polycarbonate-polysiloxane copolymer is less than 3 wt.%, the flame retardance as measured by the p(FTP) at 1.6 mm test is dramatically lowered.

In the Examiner's estimation, Applicant has not met their burden. Indeed, there appear to be no comparisons verifying that coating the  $\text{TiO}_2$  is at all critical to the successful implementation of the invention. There are, for example, no comparisons offered between two compositions that are identically-constituted except for the fact that the titanium dioxide surface has not been organically-modified in one of them.) Additionally, while it is noted that each of the trials summarized in Table 3 employed a composition where the siloxane contribution at  $.12(0.2)(100) = 2.4\%$  is lower than 3 wt.% mandated by the claims, it is not clear that the unfavorable results are attributed to this fact alone, the fact that the titanium dioxide fraction is untreated (a possibility that cannot be corroborated), or both.

Additionally, to reiterate, it is even possible to operate within the scope of Applicants' invention and still not obtain a composition having a preferable degree of flame retardance. The Examiner is forced to make a presumption here that the titanium dioxide has been coated with an organic compound because the description at paragraph 56 of the Specification is silent as to this aspect of the invention. (Previously

the Examiner had invoked the results in entry 18 as being contrary to the contentions of Applicant because the numerical limitations of the claim had been satisfied yet the  $p(\text{FTP})$  was well below 0.9. Applicant had responded to this earlier observation by stating that entry 18 merely illustrates that, where that composition is used in the manufacture of an article, it should have a minimum thickness greater than 1.6 mm.) Applicant also remarks that it had not been their intention to imply that a  $p(\text{FTP})$  of at least 0.9 is required. While this may be true, Applicant must be able to point to an outcome that they regard as being exemplary if the Examiner is to be able to interpret the data and determine what has, and has not, been established as a critical element of the invention. Besides, entry 2 of Table 3 reports a  $p(\text{FTP})$  of 0.72, higher than that of entry 18, of Table 5 yet Applicants seem to regard this result as undesirable. What then should the Examiner emphasize most when attempting to ascertain whether or not Applicant has met their burden for establishing that the results are unexpected if not the magnitude of  $p(\text{FTP})$ ?

Entry 21 in Table 5, like entry 18, casts further doubt on the importance of the aforementioned parameters because, again, there is outlined a composition that adheres to the requirements of the claim yet the composition only exhibits a  $p(\text{FTP})$  of 0.654, which is also lower than that of Table 3, entry 2.

Finally, insofar as Applicant is asserting unexpected results, it is the Examiner's position that the unexpected property should **absolutely** be recited in the claims. How exactly Applicant might wish to characterize this property is unclear to the Examiner



since he has already been admonished for placing too much importance on the p(FTP) values reported in the various trials. In any case, a response to this correspondence should include a description of the unexpected property in the base composition claim. Article claim 102 should also be amended to include the same numerical limitations placed on siloxane and titanium dioxide content because, if the claims should be found allowable, it will be on the foundation that the Applicant has soundly established the criticality of each of the aforementioned variables deemed critical to the successful practice of the invention. The Examiner can not be convinced that a comparably-constituted article having a greater thickness than the first thickness, which coincides with the thickness of the test article, is not fairly suggested by the claims. Because the article is comparably-constituted, it would inherently achieve the disclosed V0 UL rating.

***Allowable Subject Matter***

Claims 81, 82, 89, 90, 108, 109, 125, and 126 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 571-272-1096. The examiner can normally be reached on Monday-Friday 8:30-5:00.

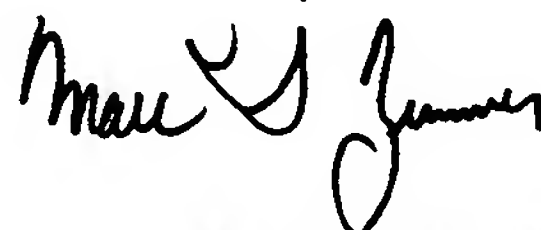
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jim Seidleck can be reached on 571-272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
10/605,671  
Art Unit: 1796

Page 9

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

January 15, 2008

A handwritten signature in black ink, appearing to read "Marc S. Zimmer". The signature is stylized with a large, looped "M" and a cursive "Z".

MARC S. ZIMMER  
PRIMARY EXAMINER